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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,552

06/13/2007

Johannus Theodorus Matheus Dielissen

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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BRIARCLIFF MANOR, NY 10510

EXAMINER

MOHEBBI, KOUROUSH

ART UNIT

PAPER NUMBER

2471

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/598,552	<b>Applicant(s)</b> DIELISSEN, JOHANNUS THEODORUS MATHEUS	
	<b>Examiner</b> KOUROUSH MOHEBBI	<b>Art Unit</b> 2471	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This action is response to application number 10598552 and applicant amendment and argument dated on 01/05/2010.

#### ***Response to Arguments***

2. Applicant's arguments with respect to claim 1-5 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endecott et al. (WO. 02/095574) in view of Givargis, et al. (1998 IEEE).

Claim 1, Endecott discloses Integrated circuit (Fig. 1 in SoC, System on a Chip) having a plurality of processing modules (M, S) (Microprocessor, Fig. 1, el. 2 and memory (storage processing module), el. 4; page 2, 3<sup>rd</sup> paragraph) and an interconnect means (N) (buses, Fig. 1, el. 6; page 2, 3<sup>rd</sup> paragraph) for coupling said plurality of processing modules (M, S) (Microprocessor, Fig. 1, el. 2 and memory (storage processing module), el. 4; page 2, 3<sup>rd</sup> paragraph) and for

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enabling a packet based communication (program instruction fetch; page 2, 7<sup>th</sup> paragraph) based on transactions (instructions are communicated between processor and memory; page 2, 7<sup>th</sup> paragraph) between said plurality of processing modules (M, S) (Microprocessor, Fig. 1, el. 2 and memory (storage processing module), el. 4), wherein each packet (instruction) comprises a first predetermined number of subsequent words (instructions as shown in page 3 consist of 32 bits and 4 words of 8 bits. Page 7 shows input/output instructions as eight bits long for sake of simplicity of the explanation; page 3, 2<sup>nd</sup> paragraph) each having a second predetermined number of bits (8 bits long words (byte) are illustrated in page 5-7), wherein a first of said plurality of processing modules (M) (Microprocessor) issues a transaction (fetch) by sending at least one packet (fetching instruction) over said interconnect means (bus) to a second of said plurality of processing modules (S) (storage processing module) (page 2, 6<sup>th</sup> and 7<sup>th</sup> paragraphs), comprising:

at least one packet inspecting unit (PIU) for inspecting bits (Endecott discloses assigning values to unused bits of instructions in order to reduce Hamming distance between successive data values (page 9, 2<sup>nd</sup> paragraph; abstract, page 1), Endecott's method necessarily includes instruction inspection unit (a module, which includes software and hardware, the software resides in memory Fig. 1, el. 4 and executed by microprocessor Fig. 1, el. 2) to detect instruction's unused bits in order to assign values to the unused bits and reduce Hamming distance) with of said at least one packet to determine bits not required

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(unused bits, page 3, 1<sup>st</sup> and 6<sup>th</sup> paragraphs; see also pages 5 and 6, unused bits marked as X) for said issued transaction and for matching said not required bits (unused bits) in a header of said at least one inspected packet related to a path over said interconnect with bits of the same packet (reducing hamming distance between successive values; page 1, 4<sup>th</sup> paragraph, page 2, 4<sup>th</sup> paragraph; copying /matching bits from preceding or following instruction of words of instructions into instruction's unused bits and minimizing the Hamming distance is described in page 6; see also page 8, 4<sup>th</sup> paragraph).

Endecott does not disclose matching said not required bits in a packet with "corresponding bits of another word within the same packet".

Givargis discloses matching said not required bits (don't care bits, don't care padding) in a packet (an item whose size is greater than the bus width) with corresponding bits of another word (matching the padding bits between pieces of an item which equally split and broken into equal size pieces) within the same packet (matching unused bits (don't care padding bits) between pieces of the same item (page 118, first column, second and third paragraph). Givargis discloses splitting an item into equal size pieces for time multiplexed transmission, and sending the equal size pieces, 8-bits (one word) of an item on the bus lines and keeping unchanged the bus lines that are not carrying information (unused bits, don't care padding).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to matching said not required bits in a packet

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with “corresponding bits of another word within the same packet as taught by Givargis. The motivation would be reducing power dissipation and fast performance (abstract).

Claim 2, Endecott in view of Givargis discloses wherein said at least one packet inspecting unit (PIU) is adapted to match said not required bits with previous or following bits in the same packet (Endecott in page 8, 4<sup>th</sup> paragraph describes the process of matching unused bits with either preceding or following bits of the instruction, the Endecott's method necessarily includes one inspecting module to detect the unused bits of instructions and match them to optimize Hamming distance).

Claim 3, Endecott in view of Givargis discloses wherein said at least one packet inspecting unit (PIU) (Endecott's method necessarily includes instruction inspection unit (a module, which includes software and hardware, the software resides in memory Fig. 1, el. 4 and executed by microprocessor Fig. 1, el. 2) to detect instruction's unused bits in order to assign values to the unused bits and reduce Hamming distance) is further adapted to match said not required bits with corresponding bits in a previous or following word in the same packet (Endecott describes 32 bit long instruction size according to the format of page 3, 2<sup>nd</sup> paragraph, in pages 5 and 6' Endecott describes smaller size (8 bits) instruction for sake of simplification of the discussion and in page 8, 4<sup>th</sup> paragraph

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describes one bit at the time matching to achieve Hamming distance optimization. Endecott describes a method to reduce average Hamming distance between successive values (general term), which can reduce Hamming distance between words in one instruction or between instructions and by no means limited to instruction fetch, see page 2, 6<sup>th</sup> and 4<sup>th</sup> paragraphs).

Claim 5, Endecott discloses method for packet switching control in an integrated circuit (Fig. 1 in SoC, System on a Chip) having a plurality of processing modules (M, S) (Microprocessor, Fig. 1, el. 2 and memory (storage processing module), el. 4; page 2, 3<sup>rd</sup> paragraph) and an interconnect means (N) (buses, Fig. 1, el. 6; page 2, 3<sup>rd</sup> paragraph) for coupling said plurality of processing modules (M, S) and for enabling a packet based communication (program instruction fetch; page 2, 7<sup>th</sup> paragraph) based on transactions (instructions are communicated between processor and memory (storage processing module); page 2, 7<sup>th</sup> paragraph) between said plurality of processing modules (M, S) (Microprocessor, Fig. 1, el. 2 and memory (storage processing module), el. 4; page 2, 3<sup>rd</sup> paragraph), wherein each packet (instruction) comprises a first predetermined number of subsequent words (instructions as shown in page 3 consist of 32 bits and 4 words of 8 bits. Page 7 shows input/output instructions as eight bits long for sake of simplicity of the explanation; page 3, 2<sup>nd</sup> paragraph) each having a second predetermined number of bits (8 bits long words (byte) are illustrated in page 5-7), wherein a first

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of said plurality of processing modules (M) (Microprocessor) issues a transaction (fetch) by sending at least one packet (fetching instruction) over said interconnect means (bus) to a second of said plurality of processing modules (S) (storage processing module) (page 2, 6<sup>th</sup> and 7<sup>th</sup> paragraphs) , comprising the steps of:

inspecting bits of said at least one packet (instruction) to determine bits not required (unused bits, page 3, 1<sup>st</sup> and 6<sup>th</sup> paragraphs; see also pages 5 and 6, unused bits marked as X) for the issued transaction and updating said not required bits (unused bits) of said at least one inspected packet with bits of the packet , wherein said unused bits are related to a path over said interconnection (reducing hamming distance between successive values; page 1, 4<sup>th</sup> paragraph, page 2, 4<sup>th</sup> paragraph; copying /matching bits from preceding or following instruction or words of instructions into instruction's unused bits and minimizing the Hamming distance is described in page 6; see also page 8, 4<sup>th</sup> paragraph).

Endecott does not disclose updating said not required bits in one packet with "corresponding bits of another word of the same packet".

Givargis discloses updating said not required bits (don't care bits, don't care padding) in one packet (an item whose size is greater than the bus width) with corresponding bits of another word (matching the padding bits between pieces of an item which equally split and broken into equal size pieces) of the same packet (matching unused bits (don't care padding bits) between pieces of the same item (page 118, first column, second and third paragraph). Givargis



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discloses splitting an item into equal size pieces for time multiplexed transmission, and sending the equal size pieces, 8-bits (8-bits word bus) of an item on the bus lines and keeping unchanged the bus lines that are not carrying information (unused bits, don't care padding), it should be understood that the bits unchanged are correspondent bits between the words (pieces).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to matching said not required bits in a packet with "corresponding bits of another word within the same packet as taught by Givargis. The motivation would be reducing power dissipation and fast performance (abstract).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Endecott et al. (WO. 02/095574) in view of Givargis, et al. (1998 IEEE) and Ricciulli, et al. (US 2004/0202190).

Claim 4, Endecott in view of Givargis discloses all the limitation of claim 2.

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Endecott in view of Givargis does not disclose “comprising:

at least one network interface (NI) associated to said first of said plurality of processing modules (I) for controlling the communication between said first of said plurality of processing modules (I) and said interconnect means (N), wherein each of said at least one packet inspecting units (PIU) is arranged in one of said network interfaces (NI)”.

Ricciulli discloses at least one network interface (NI) (Network Interface card; ¶0036) associated to said first of said plurality of processing modules (I) (Fig. 2, el. 103; ¶ 0009) for controlling the communication between said first of said plurality of processing modules (I) (Fig. 2, el. 103; ¶ 0009) and said interconnect means (N) (Fig. 2, el. 210; ¶0030), wherein each of said at least one packet inspecting units (PIU) (high speed packet inspecting; Fig. 2, el. 201; ¶0036; ¶0031; ¶0038) is arranged in one of said network interfaces (NI) (Network Interface card; ¶0036).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to add packet inspecting unit (PIU) to network interface interconnect one internal-coupling port to one external-coupling port as taught by Ricciulli to modify Endecott system in view of Givargis to inspect data stream against predetermined network rules and apply signature matching. The motivation would be inspecting (header fields, payload, CRC bits) of data packet stream base on specified rules (packet signature) for further processing and modification of the packets, which would make the system enable to implement

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Endecott teaching of determining Hamming distance and matching unused bits of the packets in a single processing module or in larger server system (¶0009; ¶0038).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KOUROUSH MOHEBBI whose telephone number is (571)270-7908. The examiner can normally be reached on Monday to Thursday, 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

K.M.

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/Steven HD Nguyen/

Primary Examiner, Art Unit 2473